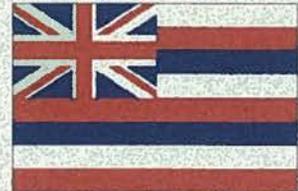


# United States All Islands Coral Reef Initiative Coordinating Committee

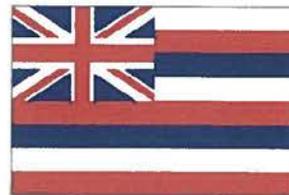
Interim Strategy  
for  
Calendar Year 2006

---



# United States All Islands Coral Reef Initiative Coordinating Committee

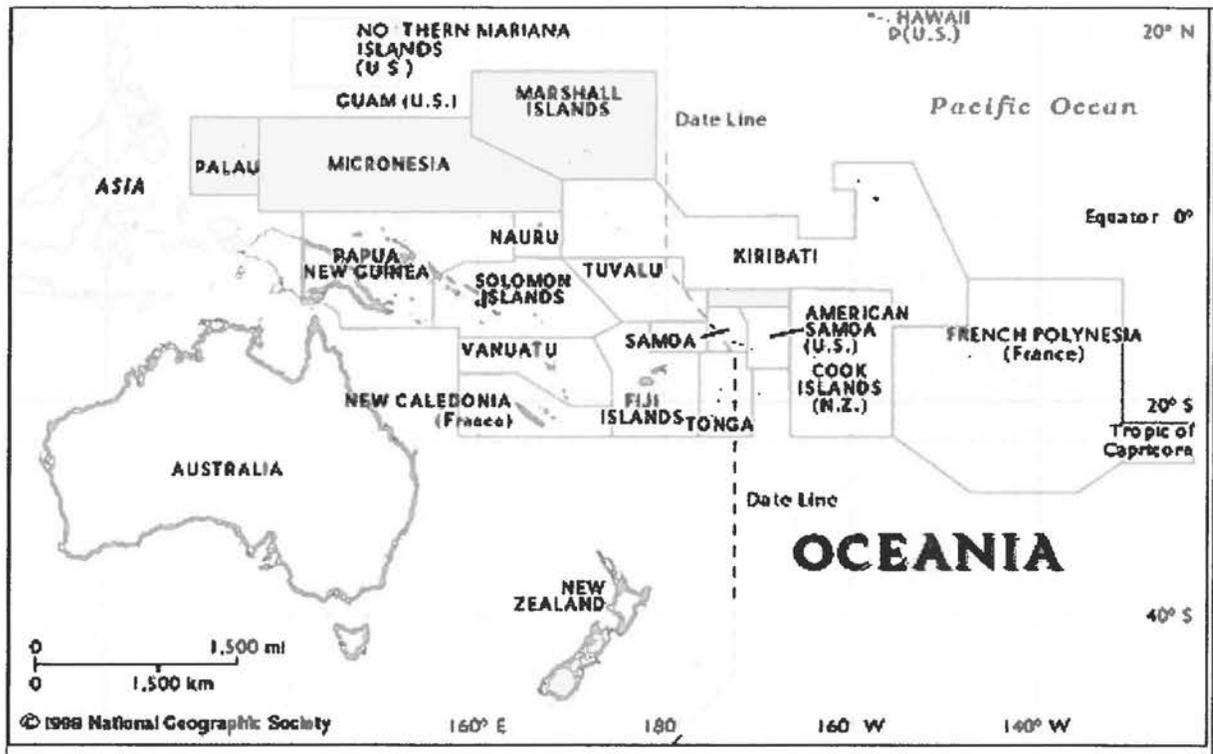
**Interim Strategy  
for  
Calendar Year 2006**



**U.S. All Islands Coral Reef Initiative Coordinating Committee  
Interim Strategy for 2006**

**Contents**

	<b>Page</b>
Introduction	i - iii
Guam	1 - 9
American Samoa	10 - 17
Commonwealth of the Northern Mariana Islands	18 - 32
Puerto Rico	33 - 36
Hawaii	37 - 40
U.S. Virgin Islands	41
Appendix: Regional Projects	Appen. 1 - 2



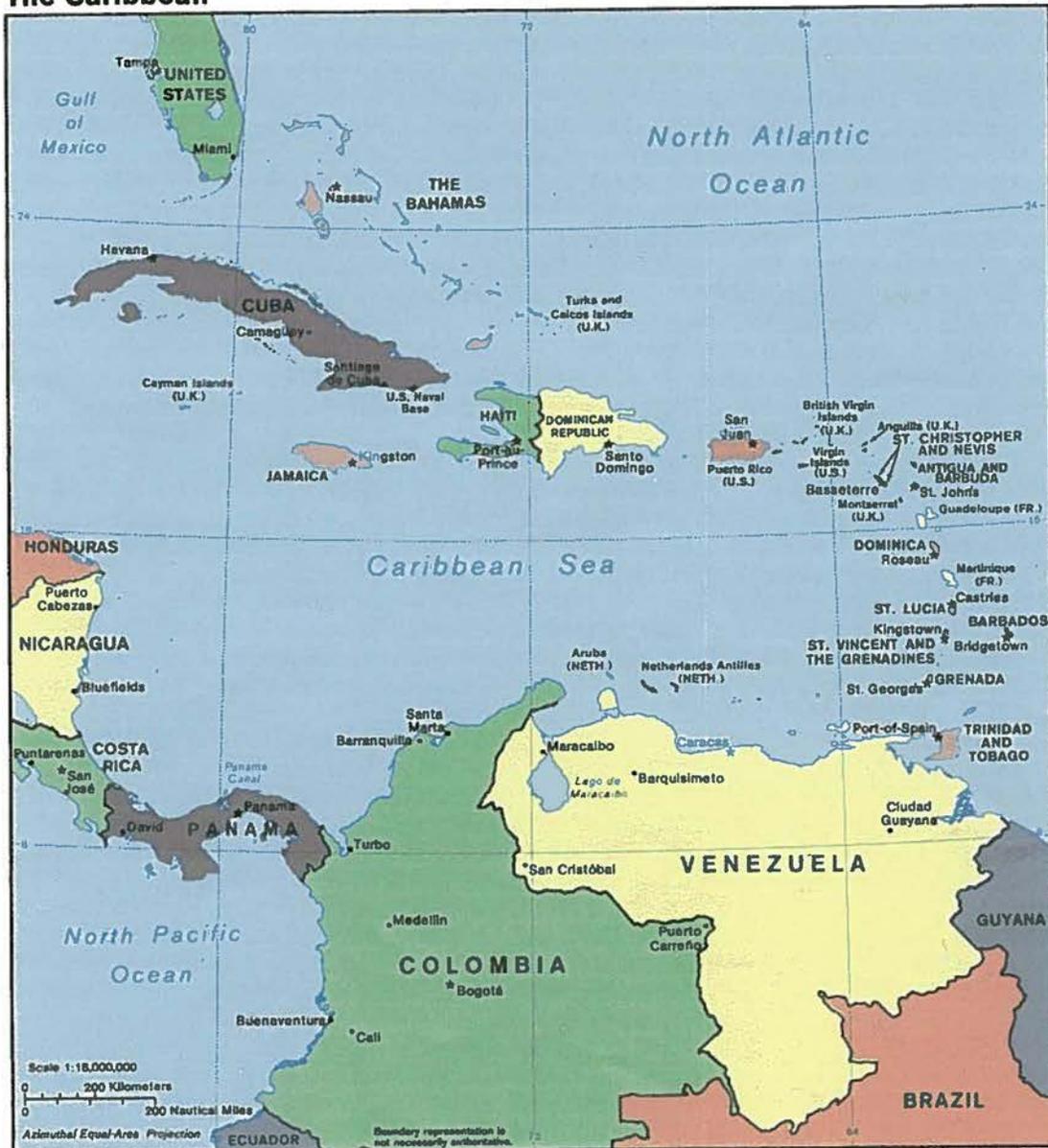
The degree to which the island States, territories and Commonwealths of the United States are dependent upon the health of a single ecosystem (coral reefs) cannot be overstated, and is little understood outside those jurisdictions. Extremely small land masses, extremely high population levels for those land masses, small percentages of arable lands available, very high poverty levels, high unemployment rates, remoteness from decision-makers, restricted voices in the National government (for the Commonwealths and territories), a single source of transportation for almost all goods (shipping), culture and tradition all combine to create the reality that daily harvesting from near shore reefs is required for the health and sustainability of the community. The ability of the reefs to provide the fishes, seagrasses and other bounty is directly proportional to the health of those reefs.

Jurisdiction	Land Area (sq. mile)	persons per square mile	% of arable land
United States	3,718,711	79.5	19.13%
U.S. Virgin Islands	135	806	11.76%
Guam	212	795	9.09%
Puerto Rico	3,459	1132	3.95%
American Samoa	77	752	10%
CNMI	184	436.75*	13.04%*
Hawaii	6,428	188*	*

\*In CNMI and Hawaii, in particular, the figures for persons per square mile and %of arable land are significantly higher than the above figures indicate. These two jurisdictions are archipelagos with uninhabited and uninhabitable islands that contribute to their total land area, but do not support persons or agriculture.

Because of these disparities, the projects listed in this document take on a greater immediacy and a greater importance than they might in dealing with other ecosystems. The destruction and loss of coral reefs in the U.S. islands can only result in the degradation of communities and the degradation of human health in these communities.

### The Caribbean



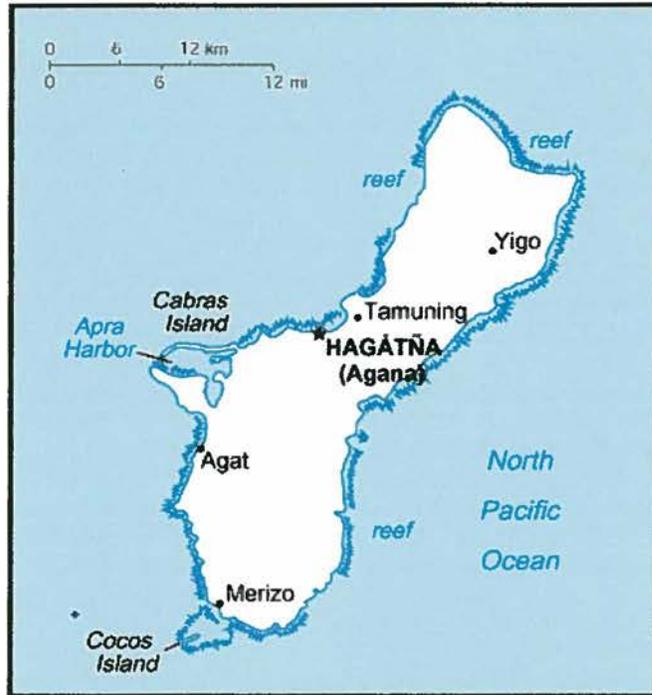
## **All Islands Coral Reef Initiative Interim Strategy for 2006**

The All Islands Coral Reef Initiative Coordinating Committee decided at its June 27-29, 2005 meeting to develop a long-range plan for the period 2007-2111 as the next iteration of the 1994 Pacific Region Coral Reef Initiative Work Plan, the 1997 All Islands Coral Reef Initiative Strategy, and the 1999 revision of that Strategy. The long-range plan would go beyond the Local Action Strategies for the period 2004-2006 and include priorities not included in the list of threats given priority by the US Coral Reef Task Force and include projects to address concerns of two or more jurisdictions. It would also be a five year plan which would allow the kind of lead time required to provide input to local and federal budget planning processes.

The All Islands Committee also decided to develop an Interim Strategy that would build upon the Local Action Strategies and serve as a transition to the island initiated planning process envision for the long range plan for 2007-2111. The scope of the Interim Strategy and Long –Range Plan are intended to be broader than the local action strategies developed in collaboration with NOAA. In some cases, they will include priorities and projects identified in the local actions strategies developed for NOAA funding and projects that were not included for which local funds or funds from other federal sources will be sought.

The Interim Strategy contains local state, territorial, and commonwealth priorities and project and regional project intended to meet the needs of more than one jurisdiction. States, territories, and commonwealths have benefited significantly from workshops and planning efforts organized on a regional or sub-regional basis to address coral reef management problems of two or more jurisdictions. Most of these were identified in the 1997 and 1999 versions of the All Islands Coral Reef Initiative Strategies and were funded by NOAA and other federal agencies.

## Guam



Guam was ceded to the US by Spain in 1898. Captured by the Japanese in 1941, it was retaken by the US three years later. The military installation on the island is one of the most strategically important US bases in the Pacific. Guam is an organized, unincorporated Territory of the United States. Congress wrote and adopted an Organic Act for Guam in 1950. The citizens of Guam drafted and passed a Guam Commonwealth Act in 1984 and requested the United States to approve the Act, but no action has been taken to date.

Governor: Honorable Felix Camacho

Coral Reef Point of Contact: Ms. Evangeline Lujan  
 Administrator, Guam Coastal Management Program  
 Bureau of Plans and Statistics  
 P.O. Box 2950  
 Hagatna, Guam 96910  
 Ph: 1-671-475-9672  
 Email: [vange@mail.gov.gu](mailto:vange@mail.gov.gu)

Extent of jurisdictional coral reefs: 69.5 square miles	Population: 168,564 (July 2005 est.)
Coral species: 522* (includes Scleractinian, non-Scleractinian and Hydrozoan)*	
Fish species: 1019*	Land Area: 212 Sq. Miles
Arable land: 9.09%	

\* = these figures apply to the entire Mariana archipelago, which includes the Commonwealth of the Northern Mariana Islands.

## Guam

**Jurisdiction:** Guam

**Major Areas of Focus for Coral Reef Management Efforts for 2004-2005 as background for the 2006 strategy:** In 1997 Executive Order 97-10, adopted the Guam Coral Reef Initiative (CRI) and created the Guam Coral Reef Initiative Coordinating Committee (GCRICC) to establish a policy development mechanism for the protection of Guam's coral reefs. This committee is currently comprised of the Guam Coastal Management Program (GCMP), the Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR) and Forestry and Soil Resources Division (FSRD), the Guam Environmental Protection Agency (GEPA), the University of Guam Marine Laboratory (UOGML), and Water and Environmental Research Institute (WERI). In 2002, as part of a larger initiative to address the continuing decline of our nation's coral reefs in a more targeted and effective way, the GCRICC identified the top five priority threats impacting Guam's coral reefs. They are: land-based sources of pollution, overfishing, lack of public awareness, recreational misuse and overuse, and climate change/coral bleaching/disease.

**Overall Goals and Objectives for coral reef initiative programs for 2006:**

The goal of the land-based sources of pollution local action strategy (LBSP LAS) is to improve the health of coral reef ecosystems by reducing the amount of sedimentation and pollution from anthropogenic sources such as development, fires, and agriculture in three priority watersheds on Guam.

The goal of the fisheries management local action strategy (FM LAS) to increase the effectiveness of the 5 marine preserves through greater support of enforcement, public outreach, and targeted research.

The goal of the education and outreach local action strategy (EO LAS) is to increase awareness of the need for the protection of Guam's coral reefs through the creation of a coordinated public awareness and outreach plan focused on improving efforts in the community, in the classroom, and with policy makers.

The goal of the recreational use local action strategy (RU LAS) is to identify and quantify major recreational uses of Guam's coastal and coral reef ecosystems, develop strategies with recreational users and reduce the negative impacts from recreational uses on these ecosystems.

The goal of the newly formed climate change/coral bleaching/disease local action strategy is to facilitate the inclusion of monitoring and management plans and activities to respond to climate change, coral bleaching, and disease on Guam's coral reefs.

## Guam

### Specific Threats or Needs to be addressed in 2006:

1. Land-based sources of pollution
2. management
3. Education and public outreach
4. Recreational use
5. Climate change/coral beaching/disease



## Guam

### Threat or Need Area (from the list on page 1) Land-based Sources of Pollution

**Goals and Objectives in this area:** Goals and Objectives in this area: to improve the health of coral reef ecosystems by reducing the amount of sedimentation and pollution from anthropogenic sources such as development, fires, and agriculture in three priority watersheds on Guam

**Project A Title:** Study the Effects of Tree Planting and Erosion Control Measures in Fouha Watershed

**Project Period:** 2005-2006

**Very Brief Project Description:** Project intends to help reduce the amount of sedimentation flowing into Fouha Bay.

**Resources Required:** Personnel, technical assistance, and seedlings

**Potential Source of Support:** Coral Reef Initiative

**Project B Title:** Digital Watershed Atlas

**Project Period:** 2006

**Very Brief Project Description:** Develop a digital watershed atlas to protect against point and non-point sources of pollution using watershed topography, vegetation, soil properties, roads, and land use and land cover information.

**Resources Required:** Computer software/hardware, and personnel

**Potential Source of Support:** Coral Reef Initiative

**Project C Title:** Watershed Restoration Workshop

**Project Period:** 2006

**Very Brief Project Description:** Conduct a workshop to encompass watershed assessment, planning, restoration, and the implementation of innovative methods for shoreline protection for key resource and regulator staff from local agencies.

**Resources Required:** Venue and facilitator

**Potential Source of Support:** Coral Reef Initiative

**Project D Title:** Staff Development in Erosion Control

**Project Period:** 2006

**Very Brief Project Description:** Provide training to the Department of Public Works staff for proper sedimentation and erosion control measures in the development of construction projects.

**Resources Required:** Training, cost accommodations (air fare, per diem, training materials)

**Potential Source of Support:** Coral Reef Initiative

**Project E Title:** Develop Watershed Planning Process

**Project Period:** 2006-2007

**Very Brief Project Description:** Develop and implement a comprehensive plan to identify pollution sources and restore impaired water quality.

**Resources Required:** Facilitator and support staff

**Potential Source of Support:** Environmental Protection Agency 319

**Project F Title:** Land-base Sources of Pollution Workshop

**Project Period:** 2007

**Very Brief Project Description:** Conduct a workshop to get feedback and develop mechanisms between the land-based sources of pollution stakeholders and government to develop sustainable initiatives for the protection of Guam's natural resources.

**Resources Required:** Venue and facilitator

**Potential Source of Support:** Coral Reef Initiative

**Threat or Need Area (from the list on page 1)** Fisheries Management

**Goals and Objectives in this area:** to increase the effectiveness of the 5 marine preserves through greater support of enforcement, public outreach, and targeted research.

**Project G Title:** Improve Enforcement of Preserves

**Project Period:** 2006

**Very Brief Project Description:** Provide equipment and increase manpower to enforce regulations of the preserves.

**Resources Required:** Equipment, boat, personnel

**Potential Source of Support:** Coral Reef Initiative

**Project H Title:** Establish permanent coral reef monitoring sites for invertebrates, algae, and fish

**Project Period:** 2006-2007

**Very Brief Project Description:** Develop and implement a program to monitor the health of Guam's coral reefs through the assessments of the benthic habitat, water quality and associated biological communities.

**Resources Required:** Equipment (nutrient and temperature loggers), supplies (slates, underwater paper, dive gear/tanks, and consumables), boat time and personnel

**Potential Source of Support:** Coral Reef Initiative

## Guam

**Project I Title:** Assessment of Algal Abundance, Composition and Chemical Defense on Reef Flats

**Project Period:** 2006-2007

**Very Brief Project Description:** Examine the abundance and types of algae, the feeding preferences of herbivorous fishes and supplies and flux nutrients in 3 MPAs.

**Resources Required:** Personnel, chemical and solvents for extraction of algae, feeding experiments and nutrient analysis, and boat time

**Potential Source of Support:** Coral Reef Initiative

**Project J Title:** Evaluation of Soft Corals as Bioindicators of Persistent Contaminants

**Project Period:** 2006-2007

**Very Brief Project Description:** Develop a cheap and reliable alternative (bioindicator organism *Sinularia*) to semi-permeable membrane devices for the monitoring of PCBs levels in Guam's waters.

**Resources Required:** Personnel, laboratory analysis, and boat time

**Potential Source of Support:** Coral Reef Initiative

**Project K Title:** User Friendly Fishing Regulations

**Project Period:** 2006-2007

**Very Brief Project Description:** Provide user friendly pocket size books of Guam's fishing regulations to the public.

**Resources Required:** Booklets and contractor

**Potential Source of Support:** Coral Reef Initiative

**Project L Title:** Characterization of Identified Reef Fish Spawning Aggregations and Sites in Piti and Asan, Guam

**Project Period:** 2007

**Very Brief Project Description:** Conduct a study to characterize previously identified reef fish spawning aggregations and sites on inshore reefs of Piti and Asan, Guam.

**Resources Required:** Personnel, boat time, and dive gear/tanks

**Potential Source of Support:** Coral Reef Initiative

**Threat or Need Area (from the list on page 1)** Education and Public Outreach

**Goals and Objectives in this area:** to increase awareness of the need for the protection of Guam's coral reefs through the creation of a coordinated public awareness and outreach plan focused on improving efforts in the community, in the classroom, and with policy makers.

## Guam

**Project M Title:** Scholarship for Graduate Student In Coral Reef Biology

**Project Period:** 2005-2006

**Very Brief Project Description:** Train individuals from Guam and increase local capacity to apply knowledge of coral reef conservation.

**Resources Required:** Educational Scholarship for two years at University of Guam Marine Laboratory

**Potential Source of Support:** Coral Reef Initiative

**Project N Title:** Public Outreach Material to Support Professor Kika Clearwater Campaign

**Project Period:** 2006

**Very Brief Project Description:** Supply additional outreach material to continue public support and provide a means for educating the public on environmental issues.

**Resources Required:** Outreach material

**Potential Source of Support:** Coral Reef Initiative

**Project O Title:** Develop a Public Awareness and Outreach Plan

**Project Period:** 2006-2007

**Very Brief Project Description:** Develop and implement a comprehensive action plan to strengthen and build on the needs of selected focus groups (i.e. tourist, school system and media)

**Resources Required:** Contractor

**Potential Source of Support:** Coral Reef Initiative

### Threat or Need Area (from the list on page 1) Recreation Use

**Goals and Objectives in this area:** to identify and quantify major recreational uses of Guam's coastal and coral ecosystems, develop strategies with recreational users and reduce the negative impacts from recreational uses on these ecosystems.

**Project P Title:** Recreational Mapping

**Project Period:** 2006

**Very Brief Project Description:** Digitally map areas of water recreation activities to facilitate a tracking and analysis of the effects of recreational activities on the marine environment.

**Resources Required:** Contractor

**Potential Source of Support:** Coral Reef Initiative

## Guam

**Project Q Title:** Basic SCUBA Instruction Sites Study

**Project Period:** 2006

**Very Brief Project Description:** Study and analyze the impacts of diving and develop a set of strategies to reduce the negative impacts of recreational use.

**Resources Required:** Contractor

**Potential Source of Support:** Coral Reef Initiative

**Project R Title:** Coral Management Workshop

**Project Period:** 2006

**Very Brief Project Description:** Conduct a workshop to create public awareness, education and improved protection and use of the marine resources.

**Resources Required:** Venue and Contractor

**Potential Source of Support:** Coral Reef Initiative

**Project S Title:** Study the Carrying Capacity of Dive Sites on Guam

**Project Period:** 2006-2007

**Very Brief Project Description:** Study the implications of dive/snorkel sites used and determine the maximum use these sites can withstand - specifically the optimum number of visitors or particular activities within an area and their impacts.

**Resources Required:** Contractor

**Potential Source of Support:** Coral Reef Initiative

**Threat or Need Area (from the list on page 1)** Climate Change/Coral Bleaching/Disease

**Goals and Objectives in this area:** to facilitate the inclusion of monitoring and management plans and activities to respond to climate change, coral bleaching and disease on Guam's coral reefs.

**Project T Title:** Development of a Coral Disease/Bleaching Impacts Working Group

**Project Period:** 2006

**Very Brief Project Description:** Develop a core group of individuals from Guam agencies to carry out documentation, monitoring, and research on primary sources of natural impacts to corals.

**Resources Required:** Venue and facilitator

**Potential Source of Support:** Coral Reef Initiative

## Guam

Guam **Project U Title:** Baseline Assessments of Coral Disease Affecting Reefs in

**Project Period:** 2006

**Very Brief Project Description:** Establish baseline levels of disease prevalence on all surveyed reefs around Guam, identify diseases affecting reefs here from known etiologies and identify reefs which show particularly high levels of disease for long-term monitoring.

**Resources Required:** Personnel, boat time, and dive gear/tanks

**Potential Source of Support:** Coral Reef Initiative

Guam **Project V Title:** Identification of Bleach-Resilient Coral Populations around

**Project Period:** 2007

**Very Brief Project Description:** Generate critical information about natural bleaching sensitivity versus resistance giving resource managers concrete options for incorporating coral bleaching and climate change into management strategies.

**Resources Required:** Personnel, boat time, dive gear/tanks, equipment and supplies

**Potential Source of Support:** Coral Reef Initiative

**Project W Title:** Long-Term Monitoring of Natural Impacts to Guam Corals: Disease, Bleaching, Predators and Invasive Species

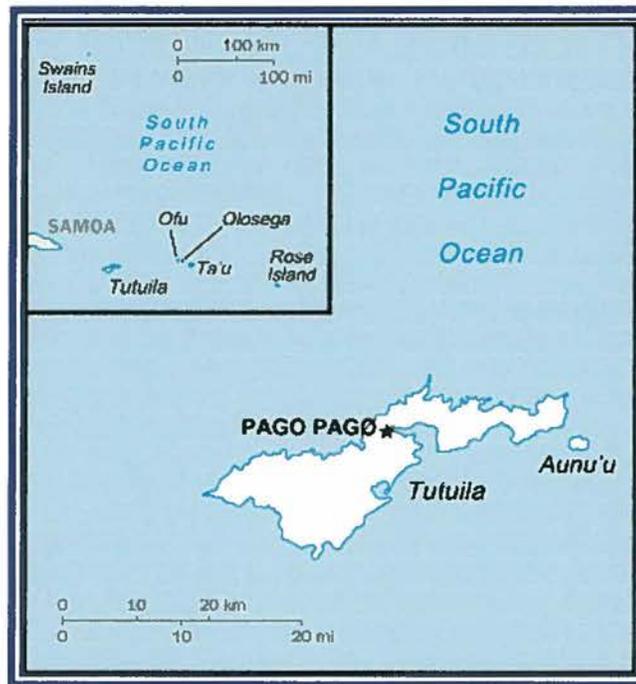
**Project Period:** 2007

**Very Brief Project Description:** Monitoring of disease incidence and temperature, other potential natural impacts, here defined as bleaching and outbreaks of coral predators (Crown-of-Thorns starfish (COT), *Drupella cornus*) and invasive species (such as the sponge *Terpios*), will be incorporated with information provided from "Baseline Assessments of Coral Disease Affecting Reefs in Guam."

**Resources Required:** Personnel, boat time, and dive gear/tanks

**Potential Source of Support:** Coral Reef Initiative

## American Samoa



Settled as early as 1000 B.C., Samoa was "discovered" by European explorers in the 18th century. International rivalries in the latter half of the 19th century were settled by an 1899 treaty in which Germany and the US divided the Samoan archipelago. The US formally occupied its portion - a smaller group of eastern islands with the excellent harbor of Pago Pago - the following year. American Samoa was admitted as a territory of the United States by Congress on February 20, 1929, and is an Unincorporated and Unorganized Territory.

The Territory of American Samoa is comprised of five significant islands and two atolls: Tutuila, Aunu'u, Ta'u, Ofu and Olosega (the last three make up the Manu'a islands), as well as Rose and Swain atolls.

Governor: Honorable Togiola Tulafono

Coral Reef Point of Contact: Mr. Lelei Peau

Deputy Director, Department of Commerce  
 American Samoa Government  
 Pago Pago, American Samoa 96799  
 Ph: 1-684-633-5155  
 Email: [lelei.peau@noaa.gov](mailto:lelei.peau@noaa.gov)

Extent of jurisdictional coral reefs: 27.04 square miles  
 Coral species: 200  
 Fish species: 890

Population: 57,881  
 Land total: 77 square miles  
 Arable land: 10%

## American Samoa

**Jurisdiction:** American Samoa

**Major Areas of Focus for Coral Reef Management Efforts for 2004-2005 as background for the 2006 strategy:**

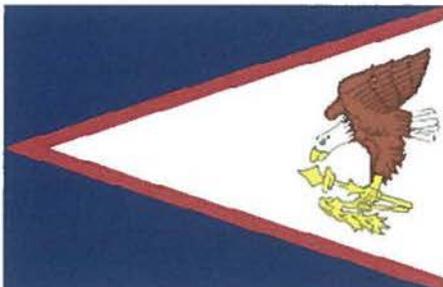
Coral reef management efforts for 2004-2005 focused on addressing the four primary threats to American Samoa reefs identified by the Coral Reef Advisory Group: Overfishing, Global climate change, Land-based sources of pollution and Overpopulation. Much of our financial resources went towards building capacity through the creation and funding of new positions to support local agency efforts to address these threats.

**Overall Goals and Objectives for coral reef initiative programs for 2006:**

Increase coral reef fish stocks and sizes; reduce land-based pollution entering coastal waters via littering and poor water quality; utilize research as a tool to make better-informed management decisions and; to highlight population pressure and its likely impacts on environmental goods and services in the coming decades.

**Specific Threats or Needs to be addressed in 2006:**

1. Overfishing
2. Global Climate change
3. Land based sources of pollution
4. Population pressures.



## American Samoa

**Threat or Need Area (from the list on page 1):** Overfishing

**Goals and Objectives in this area:** To restore stocks of commercially and ecologically important fish and prevent non-sustainable harvest of these resources.

**Project A Title:** Linking managers and scientists to information

**Project Period:** Period: October 2005 - May 2006

**Very Brief Project Description:** The proposal seeks to fund the purchase of two dedicated database workstations (one to be housed at DMWR, the other at FBNMS or DOC) for the sole purpose of housing and accessing a comprehensive database on marine and coral reef resources in American Samoa. In addition, funding for a server is also requested to make these databases available (by permission) to island members and off-island researchers.

**Resources Required:** \$7,800

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project B Title:** Development of a Coral Reef Fishery Management Plan for American Samoa

**Project Period:** January 2005 - April 2006

**Very Brief Project Description:** The objective of this study is to develop, in conjunction with researchers from the University of California, Santa Barbara, a set of proposed management, research, and enforcement actions under a common framework (plan) that will sustain coral reef fish populations for subsistence and artisanal fishing in American Samoa.

**Resources Required:** \$8,800

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project C Title:** Develop a Market Survey Program

**Project Period:** January 2006 - December 2006

**Very Brief Project Description:** In order to manage the coral reef fish of American Samoa, and in particular to reduce over fishing, it is necessary to obtain accurate data on fish stocks, fishing effort, and the trade and consumption of fish. A questionnaire will be devised by DMWR staff for all stores on island that have sold or are still buying fresh fish from local fishermen. The information gathered will provide the grounds for this study. The goal is to create an expansion on the fish market efforts to determine the total annual commercial fish catch for the island of Tutuila.

**Resources Required:** \$7,238

**Potential Source of Support:** Coral Grant (DOI, NOAA)

## American Samoa

**Project D Title:** Legal Review of Fishing Regulations

**Project Period:** October 2005 - January 2006

**Very Brief Project Description:** This project will provide for an outside legal review of final draft fishing regulations, before the department seeks Fono approval. Ensuring that all legal issues are resolved before sending them to the legislature for approval will greatly speed up the implementation process

**Resources Required:** \$5,000

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project E Title:** Community-based MPA Training for Trainers and Educators

**Project Period:** January 2006 - March 2006

**Very Brief Project Description:** This project proposes to fund two MPA Training Workshops. The first is an MPA training workshop for the Department of Marine and Wildlife Resource's (DMWR) Community-based Fisheries Management Program (CFMP) staff and Education Division. The second training workshop will utilize the staff mentioned above to then train additional educators on community-based MPA topics. This project further proposes to fund community-based MPA outreach materials such as a MPA training packet, MPA fact sheets and brochures.

**Resources Required:** \$3,400

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project F Title:** Community-based Marine Protected Area Socioeconomic Assessment and Monitoring

**Project Period:** October 2005-August 2006

**Very Brief Project Description:** A consultant will be hired to assist in conducting the following activities:

1. Creating a long-term database to store all data, including training on data entry, database maintenance and report production.
2. Providing training, such as how to facilitate or conduct socio-economic surveys in a community, how to enter and analyze data, and how to report the information.
3. A graduate student may be involved in assisting the staff on data entry and compiling and analyzing all past social/governance monitoring that may have been done on local MPAs.

**Resources Required:** \$11,345

**Potential Source of Support:** Coral Grant (DOI, NOAA)

## American Samoa

**Project G Title:** MPA Plan public comment meetings

**Project Period:** January 2006-December 2006

**Very Brief Project Description:** This project proposes a public comment series of meetings in select villages which will allow an opportunity for public participation in the MPA Planning Process.

**Resources Required:** \$3,500

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Threat or Need Area (from the list on page 1)** Global Climate Change

**Goals and Objectives in this area:** Mitigate the negative effects of global climate change on coral reefs in American Samoa by supporting research and education initiatives

**Project H Title:** Ofu marine field station support

**Project Period:** January 2006

**Very Brief Project Description:** Attract researchers to American Samoa, and Ofu in particular, by providing basic research equipment.

**Resources Required:** \$6,900

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project I Title:** Climate change vulnerability studies

**Project Period:** January 2006-December 2006

**Very Brief Project Description:** The purpose of this proposal is to establish a fund to which researchers can apply to investigate global climate change and coral reefs in the Territory. Researchers interested in obtaining funding from CRAG for their climate change related projects will submit full proposals for CRAG's consideration.

**Resources Required:** \$30,000

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Threat or Need Area (from the list on page 1)** Land-based sources of pollution

**Goals and Objectives in this area:** To protect coral reefs in American Samoa from land-based sources of pollution

## American Samoa

**Project J Title:** No littering signs next to streams and coastal waters

**Project Period:** January 2006

**Very Brief Project Description:** To compliment existing and planned educational efforts and anti-litter programs, ASPA proposes that signs be placed in critical locations to remind people to use trash bins and thereby reduce the volume of trash entering the ocean.

**Resources Required:** \$5,500

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project K Title:** Plastic bag reduction campaign

**Project Period:** January 2006 – August 2006

**Very Brief Project Description:** Provision of reusable canvass shopping bags silk screened with an educational message will target the dual objectives of reducing land based sources of pollution and raising environmental awareness. As a pilot effort, this project will fund the purchase and distribution of 1000 canvass bags.

**Resources Required:** \$4,000

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project L Title:** Recycling campaign and contest

**Project Period:** October 2005 – June 2006

**Very Brief Project Description:** This project consists of two components: 1) public outreach to raise awareness of recycling options and 2) incentive program to generate community level recycling efforts.

**Resources Required:** \$12,000

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project M Title:** ASCC Internship Program

**Project Period:** October 2005 – December 2006

**Very Brief Project Description:** This project will provide small stipends (\$500 for projects requiring at least 60 hours of work), for four student interns working on land-based sources of pollution related projects. This project will both provide support for priority projects and increase local capacity in the arena of land-based sources of pollution.

**Resources Required:** \$2,000

**Potential Source of Support:** Coral Grant (DOI, NOAA)

## American Samoa

**Project N Title:** Park ranger pilot program

**Project Period:** October 2005 – October 2006

**Very Brief Project Description:** Funds are sought on a one-time basis to hire one park ranger to provide an afternoon and weekend presence in Lions Park, Nu'uuli. Upon selection, training and deputizing, the ranger will be responsible for: educating park visitors about the importance of proper waste disposal; parks and recreation security and issuing of citations for littering; reporting any and all criminal in territorial parks (such as graffiti and vandalism) activities to the Department of Public Safety; provide weekly reports to Director of Parks and Recreation and CRAG.

**Resources Required:** \$9,750

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project O Title:** Coral disease monitoring

**Project Period:** October 2005 – December 2006

**Very Brief Project Description:** This work will be undertaken as a subset of the coral monitoring program that has been developed in American Samoa. It will utilize staff that will be involved in this program, primarily the Coral Monitoring Ecologist. Diseased coral will be tagged, photographed, and then periodically re-photographed to determine the progression of the syndrome and its ultimate conclusion. In addition, samples will be sent off island for analysis.

**Resources Required:** \$3,498

**Potential Source of Support:** Coral Grant (DOI, NOAA)

### Threat or Need Area (from the list on page 1) Overpopulation

**Goals and Objectives in this area:** Assist the Population Implementation Committee (PIC) to create policies, programs, and incentives that will stabilize population to reduce the harmful environmental effects of over population.

## American Samoa

**Project P Title:** Address increased infrastructure needs due to population growth

**Project Period:** January 2006 – April 2006

**Very Brief Project Description:** This project represents the initiation of strategic planning efforts, within three critical departments, to acknowledge and address the numerous issues surrounding an ever-increasing population. With the guidance of CRAG's Population Working Group, external facilitators will assist the above-mentioned departments to conceptualize the obstacles they will face if population growth is left unchecked. The resultant strategic plans will serve two purposes: First to increase decision-maker awareness of the urgent need to reduce population growth; and second to assist non-CRAG agencies in reducing future impacts to the reefs resulting from the inevitable increases in infrastructure.

**Resources Required:** \$12,960

**Potential Source of Support:** Coral Grant (DOI, NOAA)

**Project Q Title:** Village Delegate workshop

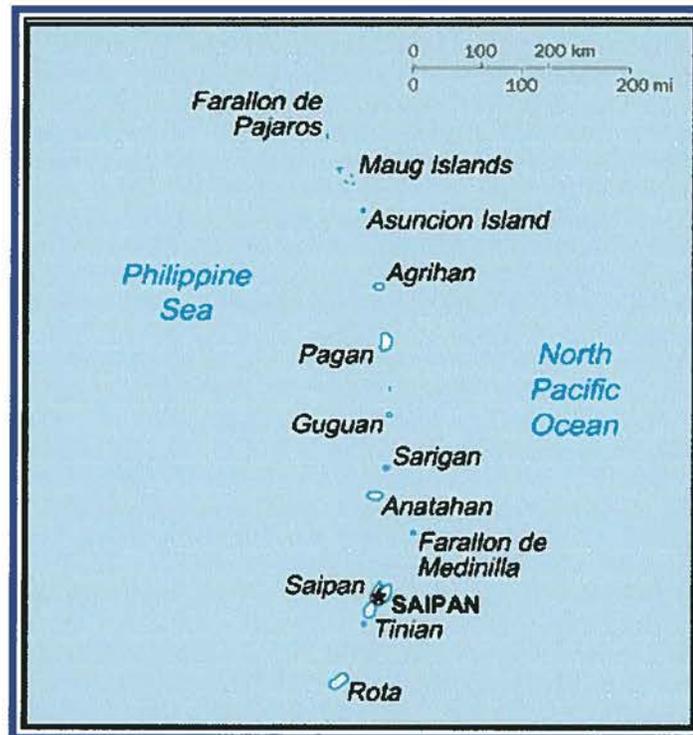
**Project Period:** April 2006 – July 2006

**Very Brief Project Description:** The Village Population and Environment Delegate pilot program will serve to introduce the issues surrounding overpopulation into the village context, providing village delegates with general knowledge regarding the impacts of overpopulation on the environment, and providing them with the resources to bring this knowledge back to their respective communities.

**Resources Required:** \$7,000

**Potential Source of Support:** Coral Grant (DOI, NOAA)

## Commonwealth of the Northern Mariana Islands



Under US administration as part of the UN Trust Territory of the Pacific, the people of the Northern Mariana Islands decided in the 1970s not to seek independence but instead to forge closer links with the US. Negotiations for territorial status began in 1972. A covenant to establish a commonwealth in political union with the US was approved in 1975. A new government and constitution went into effect in 1978. Almost all of CNMI's population resides on the three most southern islands; Rota, Tinian and Saipan. The islands north of Saipan contain active volcanos and (excluding Pagan) extremely small land masses.

Governor: Honorable Juan N. Babauta

Coral Reef Point of Contact: Mr. Adam Turner  
 Coastal Resources Management Office  
 P.O Box 10007  
 Saipan, MP 96950  
 Ph: 1-670-664-8305  
 Email: [ABTURNER2@aol.com](mailto:ABTURNER2@aol.com)

Extent of jurisdictional coral reefs:

Population: 80,362

Coral Species: 522\* (includes Scleractinian, non-Scleractinian & Hydrozoan)\*

Fish species: 1019\*

Land Area: 184.17 Sq. Miles

Arable Land: 13.04%

\*=these figures apply to the entire Mariana archipelago, which includes Guam.

## Commonwealth of the Northern Mariana Islands

**Jurisdiction:** Commonwealth of the Northern Mariana Islands (CNMI)

**Major Areas of Focus for Coral Reef Management Efforts for 2004-2005 as background for the 2006 strategy:** Coral reef management efforts in the CNMI during FY 2004 and FY 2005 focused on securing funding for and implementing the September 2003 CNMI Coral Reef Protection Local Action Strategy (CNMI LAS). The projects that make up the CNMI LAS were identified as priority actions to take to address the five primary threats to CNMI reefs: Land Based Sources of Pollution Management, Fisheries Management, Public Awareness and Involvement Building, Recreational Use Management, and Management capacity Building. FY 2006 marks the third year following the development of the CNMI LAS; however, only a portion of the projects have been fully funded from the start. Thus, for some projects FY2006 represents their 3<sup>rd</sup> year of implementation, while for other projects this coming year represents their second or first year of implementation.

**Overall Goals and Objectives for coral reef initiative programs for 2006:** The goals and objectives for CNMI coral reef protection in FY 2006 are those identified in the CNMI LAS. Specifically, we aim to decrease land-based sources of pollution within 3 priority watersheds, improve the long-term sustainability of near shore resource use, Increase resident, visitor, and guest worker awareness of the need to properly manage watersheds and marine habitats and their involvement in management, better manage tourism and recreational activities, and secure adequate staff, training and technical assistance to manage threats to coral reef resources and implement the CNMI coral reef initiative.

**Specific Threats or Needs to be addressed in 2006:**

1. Land Based Sources of Pollution Management
2. Fisheries Management
3. Public Awareness and Involvement Building
4. Recreational Use Management
5. Management Capacity Building



## Commonwealth of the Northern Mariana Islands

### Threat or Need Area (from the list on page 1) 1. Land Based Sources of Pollution Management

**Goals and Objectives in this area:** Land-based sources of pollution are having a significant negative impact on coral reef health and coral cover throughout the populated islands of the CNMI. These sources of pollution are one of the CNMI's greatest threats to its reefs in the southern islands. The CNMI's natural resource agencies have several plans and programs in place to address and monitor the inputs and effects of current and potential sources of land-based sources of pollution on the marine environment. However, the problem is large and complicated. CNMI would like to develop and grow in a competitive economic environment, yet the resource base is finite and already heavily impacted by human activities. Addressing land-based sources of pollution involves all sectors of the government, private and public sectors.

Decreased water quality threatens coral reefs and other marine systems that rely on good water quality to thrive. These marine communities are negatively altered in response to nutrient loads, sediment loads, temperature, turbidity, and other water quality parameters. Both point and non-point source pollution are responsible for lowering the quality of the CNMI's surface and near-shore coastal waters. Sewage out-falls, sewer collection overflows, sedimentation from unpaved roads and development, urban runoff, reverse osmosis discharges, and nutrients from landscaping, golf courses, and agriculture are some of the most significant stressors on CNMI's surface and marine water quality.

The geology of the three most Southern and populated Mariana Islands suggests that they were once submerged below sea-level, allowing a layer of coral reef to form over the volcanic rock. This resultant limestone rock is extremely porous in nature and groundwater discharges unknown amounts of pollution that can enter the basal aquifer, and marine system. Lack of knowledge about groundwater flow and water quality is a major impediment to improving conditions for many of CNMI nearshore marine systems. Three watersheds were selected as the focus for this threat area in the CNMI Coral Reef Protection Local Action Strategy: Laulau Bay on Saipan, Taga Beach and Barcinas Bay on Tinian, and Talakaya on Rota. The goals for each of these watershed are as follows: decrease sedimentation in Laulau Bay, characterize near-shore water quality between Taga Beach and Barcinas Bay, and decrease sedimentation in Talakaya Bay.

## Commonwealth of the Northern Mariana Islands

**Project A Title:** Stabilize Stream Crossings on the Laulau Bay Road to Control Sedimentation Runoff into Laulau Bay (part of larger LAS project to design and implement Laulau Bay road and drainage improvements to reduce erosion and sedimentation)

**Project Period:** FY2006 (FY2005 to FY2008 for larger project)

**Very Brief Project Description:** Laulau Bay is the second-most popular dive site on Saipan and also an important recreation area for local residents. Land-based sedimentation is negatively affecting water quality benthic and fishery resources in the nearshore waters of Laulau Bay. Typhoon Chaba caused erosion of the access road and spread mud over the reef flat and outer reef. The Coastal Resources Management Office is currently contracting for an architectural and engineering (A&E) design to control the major sediment sources, including constructing stream crossings on the access road to include upstream debris racks and sedimentation features on the downstream side. The A&E design will be finished in mid-2005. Funding requested under this award will be used to construct one or two of the stream crossings, depending on final cost estimates and ranking of priority sites. Each crossing will be individually engineered and will be supported by upstream "soft" erosion control measures. The current request is based on the project engineer's preliminary estimates. Stream crossings typically include mobilization; construction survey & staking; soil erosion control; clearing and grubbing; structure excavation; structural backfill; mortared rip rap; aggregate base ; asphalt concrete pavement; prime coat; pipe culvert; guardrail; concrete headwall; and downstream gabions.

**Resources Required:** \$75,000 request for FY2006 to stabilize 2 stream crossings (total budget for larger project is \$425,000)

**Potential Source of Support:** FY2006 Coral Management grant (Federal Highway Funds, CIP Funds, and Dept. of Transportation for larger project)

**Project B Title:** Talakhaya Revegetation

**Project Period:** FY2005, FY2006 and FY 2007

**Very Brief Project Description:** The Talakhaya Watershed contains Rota's only flowing waters, which support domestic use. For decades, this watershed has suffered from frequent wildfires intentionally set by hunters to create new vegetation growth for attracting Sambar deer. The fires remove vegetation and cause significant soil erosion and slumping, particularly during the rainy season.

Talakhaya has been identified as a Threat/Focus Area in the CNMI's Coral Reef Initiative Local Action Strategies. In addition, the watershed is listed as a Category I Watershed in the CNMI's Unified Watershed Assessment, which means that it is in need of restoration since it does not meet, or is facing imminent threat of not meeting, clean water and other natural resource goals

Most of the bare soil areas in Talakhaya are a type of soil known as Akina-Badlands complex. This soil type is primarily volcanic, highly erodible, acidic, nutrient poor, and a

### Commonwealth of the Northern Mariana Islands

contains a very low organic content. During storm events, runoff is rapid and soil erosion severe, leading to considerable sedimentation of the marine environment.

Baseline studies conducted by the CNMI's Marine Monitoring Team (MMT) over the last four years show that turf algae, which grow rapidly in response to nutrient addition associated with upland sedimentation, have begun to dominate the nearshore coral reef community.

This project will revegetate large sections of the watershed. The project will address significant soil erosion problems in Talakhaya, reduce the flow of land-based pollutants currently impacting the marine environment, and involve the local community in the restoration and management of a key watershed on Rota. The project will serve as a model for future restoration efforts in other CNMI watersheds.

**Resources Required:** Total estimated need for three years is \$135,000; \$40,000 is requested for FY2006

**Potential Source of Support:** Coral Management grants, EPA, NRCS

**Project C Title:** Lao Lao Bay – Know Your Watershed (cross cutting with Public Awareness and Involvement)

**Project Period:** FY2006

**Very Brief Project Description:** This project will encourage the Laulau community to become more involved in the management of their watershed. This will include activities such as revegetation projects, adopting appropriate waste disposal practices, and eventually policing their watershed region by reporting major land clearing and illegal dumping.

This project offers several major goals. The first goal is to educate and bring public awareness about the impacted watershed, especially to those individuals who live, work, and recreate within the watershed. The Laulau Bay watershed community consists of residential families, and hundreds of tourists visiting the popular dive site daily. The second goal of this project is to create partnerships with watershed stakeholders. The main focus of this partnership is for the Laulau Bay community to actively partake in protecting and maintaining the health of their watershed by, policing their watershed, and participating in watershed events in their area.

The other area proposed for this project involves the collection and analysis of water quality data. This will be a multi year effort to quantify the groundwater situation so that proper policy decisions are made.

**Resources Required:** \$26,000

**Potential Source of Support:** Coral Management grant

#### Threat or Need Area (from the list on page 1) 2. Fisheries Management

**Goals and Objectives in this area:** The CNMI's Local Action Strategy process identified a number of high-priority goals with regard to the improved

### **Commonwealth of the Northern Mariana Islands**

management of local fisheries resources. The greatest needs focused on improved regulatory control (through improved statutes, regulations, rules, and standard operating procedures; improved public access to these statutes, regulations, and rules; and improved enforcement) and improved data collection on resource use for management purposes. These needs were seen as so critical that they should be addressed immediately, and before any other needs in the Fisheries Management LAS.

Although improvements in regulatory control can always be made, it is the CNMI's intention to revise the current statutes, regulations, rules, and standard operating procedures, such that they form a more cohesive and clear package. This effort should be completed over the next year, with the assistance of the Attorney General's Office. The revision of the CNMI's regulatory control and development of a more cohesive regulatory package will ultimately only be effective if there is both adequate enforcement and public support. Therefore, co-incident with these revisions is the development of standard operating procedures (SOPs) and additional training in the legal process for DFW's Conservation Enforcement Officers. In October, a training session was held by the Department of Justice personnel related to enforcement of environmental regulations. The seminar addressed evidence, procedures, and prosecution strategies.

The enforcement of resource protection statutes, rules, and regulations should continue to improve, as long as the operations of the Conservation Enforcement Section are funded sufficiently to carry out these duties. This funding has been a continuing problem for the CNMI's DFW, because the Conservation Enforcement Section is otherwise funded entirely through local funding. It is DFW's intention to augment the Conservation Enforcement Section through the CNMI-Federal Cooperative Law Enforcement Agreement and decrease our reliance on CRI funding.

A quarterly dialog with fishers from Saipan, Tinian, and Rota will be developed. This will incorporate stakeholder priorities and perceived needs into the regulatory process. In addition, this dialog will assist in allowing the government to enlist the cooperation and assistance of the public in regulatory control.

The inshore creel survey will continue. This group will include spear-fishers, cast-net (talaya) fishers, and reef gleaners. Most of this resource use is believed to be by subsistence and recreational fishers that is not otherwise captured in the existing commercial sales monitoring or the boat-based creel survey. The NOAA has agreed to review the success of the CREEL program and will review funding option if this creel survey prove successful

**Project D Title:** Retain Marine Law Enforcement Officers and Support Marine Enforcement Operations

**Project Period:** Continual

**Very Brief Project Description:** Improvement of enforcement and continued enforcement of CNMI statutes and regulations that protect and conserve our

## Commonwealth of the Northern Mariana Islands

aquatic resources was a high priority in the CNMI's Local Action Strategies. Clearly there is a need to not only continue, but also improve the enforcement of wildlife and fisheries laws, regulations, and rules. The Coral Reef Initiative fiscal year 2006 funds will continue the employment of 3 DFW Conservation Enforcement Officers and provide the officers with support for the continuation of enforcement on marine protected areas.

For the past 4 years, the CNMI's CRI management grants have allowed the CNMI to hire 3 of the 8 Conservation Enforcement Officers. With these additional Conservation Enforcement Officers more time and effort is placed on enforcing marine areas. The enforcement capacities of these Officers have also been improved with the purchase of vessels and equipment and the provision of training. CRI funding provides assistance to continue the employment of three marine conservation officers and support for the enforcement of local and federal regulations pertaining to the CNMI's marine environment.

**Resources Required:** Estimated need is \$164,000 per year; \$90,000 requested for FY2006

**Potential Source of Support:** Coral Management grants and local funding

**Project E Title:** Fishing Regulations Booklet (cross cutting with Public Awareness and Involvement)

**Project Period:** FY2006

**Very Brief Project Description:** The need to educate the public on existing fishing regulations was highly prioritized in the CNMI Local Action Strategy. The funding of this project will provide for the distribution of legal information that is not allowed thru other funding sources. The booklet will contain information on limited take areas, cast net size limits, regulations pertaining to fish take, moratoriums, federally protected species, shell fish, permitting process and other pertinent CNMI laws.

**Resources Required:** \$6500 for FY2006

**Potential Source of Support:** Coral Management grants

**Project F Title:** Quarterly Forums for Fishermen to Share Ideas and Concerns for All Three Islands

**Project Period:** FY2005, FY2006 and FY2007

**Very Brief Project Description:** Quarterly forums will be held for fishermen from Saipan, Tinian, and Rota to meet, share ideas, and discuss critical issues and concerns. Three meetings will be held at each island to showcase the importance of hearing their views, as well as to allow fishermen from all 3 islands CNMI-wide issues. Relevant issues will be brought forth and discussed at subsequent Western Pacific Regional Fisheries Management Council Meetings by CNMI Advisory Panel representatives. Wherever possible, DFW will incorporate fishermen's issues and concerns into local fisheries management plans and revisions to statute, regulations, and rules. This will also be an opportunity to strengthen the dialog between the resource user community and the resource managers.

### Commonwealth of the Northern Mariana Islands

This task was the second highest-ranking priority within the CNMI's Fisheries Management Local Action Strategy. Stakeholder participation is critical to the long-term success of any management program, including federal and local fisheries management plans. Through quarterly forums, fishermen can present their ideas and concerns and participate in the management process.

**Resources Required:** \$6000 for FY 2005 and \$3500 for GY2006

**Potential Source of Support:** Coral Management grants

**Project G Title:** Develop and Implement a Comprehensive Inshore Creel Survey for Saipan Lagoon

**Project Period:** FY2005, FY2006 and FY2007

**Very Brief Project Description:** The Saipan Lagoon was identified through the CNMI Coral Reef Protection Local Action Strategy (LAS) stakeholder meetings as being the most depleted in the CNMI, and therefore, the area that most likely would show positive trends in food fish abundance and biomass as a result of the reduction in allowable fishing methods. Within the Fisheries Management Section of the CNMI LAS, the highest priority in the FY05 is Project Number C.3: "Develop and Implement a Comprehensive Inshore Creel Survey for Saipan Lagoon."

No data collection program or comprehensive management plan presently addresses sustainable fishing issues in the near-shore (<100-ft contour) coral reef fisheries. However, several conservation areas, MPAs, and gear restriction regulations have been established. There is a dire need to develop and implement a fisheries data collection program for the near shore coral reef fishery resources found in the Saipan Lagoon.

Results from the data collection program will be used as the basis for implementing specific fishery management measures targeted at those species or lagoon resources identified as requiring further protection.

Inshore creel surveys will require conducting creel surveys, sampling the catch, and interviewing fishermen on a regular basis along the entire western side of Saipan. The data collected will be entered into a database, and summarized as quarterly reports of catch and effort associated with near-shore coral reef resources in the Saipan Lagoon and its outer reef slope. These reports will be publicly available and posted on the DFW website.

**Resources Required:** Estimated need is \$140,000 per year; \$111,550 requested for FY2006

**Potential Source of Support:** Coral Management grants or WestPac Fin

**Threat or Need Area (from the list on page 1)** 3. Public Awareness and Involvement Building

## Commonwealth of the Northern Mariana Islands

**Goals and Objectives in this area:** The overall goal of this threat/need area is to increase resident, visitor, and guest worker awareness of the need to properly manage watersheds and marine habitats in light of the threats to coral reefs. Although many CNMI residents recognize the importance of coral reefs and coral reef associated habitats to the long-term stability of the CNMI culture and economy, there is a general lack of awareness of the current status of and the threats that human activities pose to these ecosystems. Increasing public awareness of the damage that has already been caused to coral reef systems and the continuing threat to these systems will help spur political and social action to reduce such threats.

The CNMI needs to document and inform interest groups about the state of CNMI's coral reef ecosystems and how their actions can affect reef ecosystems. Interest groups we would like to reach include local resource users and general populous; local, national and international decision-makers; and the tropical marine conservation and management audience. The CNMI would also like to compare its coral reef ecosystems' status and trends to other reefs.

Within the CNMI student population there is a general lack of knowledge about CNMI's marine systems and resources and how the human population is affecting these. Within the CNMI education system there is a lack of opportunities for students learn about and experience the marine environment and the challenges faced by resource managers. The Public School System (PSS), private schools, and Northern Marianas College (NMC) lack resources (such as reference materials, classroom aquaria, laboratory equipment and materials, and snorkeling gear) to teach students about marine ecosystems and their management and get students in the water. The sciences, in particular resource management, have lagged behind business, legal, medical and tourism professions as a preferred educational goal in the CNMI. As a result, local resource agencies must generally hire technical staff from outside the Commonwealth.

**Project H Title:** Education and Outreach Coordinator

**Project Period:** FY2005 and FY2006

**Very Brief Project Description:** This project continues the employment of a full-time education coordinator within the CRM office. The primary role of this individual is currently to implement public involvement LAS tasks. To date, in the short time that he has been employed at CRM, he has produced a sticker, a pamphlet on safe snorkeling and diving techniques, several presentations for school children, and a mascot, letterhead, and T-shirt for an interagency environmental outreach and education group.

**Resources Required:** \$30,000 per year

**Potential Source of Support:** Coral Management grants or Coastal Zone Management grants

## Commonwealth of the Northern Mariana Islands

**Project I Title:** Media/rare Pride Campaign

**Project Period:** FY2006 and FY2007

**Very Brief Project Description:** CNMI will be initiating a Rare Pride campaign in early 2006. The campaign will use charismatic flagship species to inspire local pride. With a series of outreach activities incorporating a number of different marketing techniques, the campaign will aim to change behavior and generate support for ecosystem protection. Rare has worked in over 40 different countries and 4 continents. The program consists a 10-week training course, a 1-year intensive outreach campaign focusing on coral reef conservation in the CNMI, and a follow-up evaluation and planning component. The CNMI will benefit through capacity building of the campaign manager and the training that she then provides locally and outreach materials used in the campaign. Expected results include widespread attitudinal and behavioral change in local communities, conservation results such as support for ecosystem conservation, and an increased sense of public stewardship.

**Resources Required:** \$80,000

**Potential Source of Support:** USCRTF/NOAA, Coral Management Grants, Rare

**Project J Title:** Implementation of Local Action Strategy Projects  
Relevant to Education and Outreach

**Project Period:** FY2003-2006

**Very Brief Project Description:** This project takes a number of approaches to involving a variety of key coral reef stakeholders in monitoring, managing, and educating students, stakeholders, and the general public about CNMI's coral reefs. During FY2006, the CNMI will continue or initiate implementation of 8 of the 13 projects identified in the Increase Awareness and Involvement section of the CNMI LAS, five of which a noted specifically in different sections of this strategy. A number of these projects are detailed specifically All 7 of the projects to be funding by this task were recently identified by the stakeholders involved in the developing the CNMI LAS as priority projects to initiate or continue in Fiscal Year 2005. The LAS projects included as part of this task are described below.

LAS Project # D.7. For the forth year in a row, we will continue the small grant program for improving coral reef education and outreach. Approximately two to four small grants will be made available on a competitive basis to support coral reef education, awareness, and stakeholder involvement activities within the CNMI. Although open to any proposal that will fill an education and outreach need in the CNMI, grant selection will favor projects that enhance coral reef curriculum and experiential opportunities. For example, grants may support such activities as purchase of laboratory and field equipment and supplies, transportation cost to access reef sites, reference materials, printing costs associated with developing marine sciences curriculum, snorkeling gear, etc. Grants will range between \$1,000 and \$10,000.

## Commonwealth of the Northern Mariana Islands

LAS Project # D.12. For the fourth year in a row, we will continue student internship opportunities for CNMI post-secondary students. At least three paid internships will be placed with resource management agencies. Although internship opportunities will be open for anyone to apply, priority will be given to recruiting and awarding internships to CNMI residents either attending NMC or completing post-graduate studies abroad and returning to the CNMI for the summer. The internship program will provide students with a project-based summer internship involved in some aspect of coral reef resource management. Student supervisors will propose projects for the students to complete during their internships, potentially including the following topics: habitat assessment, recommendations for changes to existing permit conditions and regulations, GIS delineation of marine sports boundaries, development of coral reef outreach brochures.

At the end of a student's internship, a final project report will be provided to CRM, including evaluation of the project by the student and the host agency.

LAS Project # D.8. In FY 2006 we will complete the second year of a three-year project to institute new coral reef school curricula at the K-12 and community college levels. Funding will provide support for the development of lesson plans and compilation of teaching resource materials about coral reef issues. A curriculum developer (CD) will be hired to determine the issues that scientists would like highlighted in school curriculums, then arrange meetings with education stakeholders to determine the curriculum and resource needs on the part of the teachers. By the end of the first year, the CD will have gathered existing coral reef resources from the CNMI and from outside sources, and will begin to adapt the materials for use in the CNMI.

**Resources Required:** Estimated needs of \$10,000 for internship program and \$25,000 small grants program per year, plus \$128,000 total 3 year curriculum development budget; \$30,000 requested in FY2006

**Potential Source of Support:** Coral Management grants

**Project K Title:** Eco Arts Festival

**Project Period:** FY 2005 and FY2006

**Very Brief Project Description:** The Eco-Arts Festival will be a summer weekend event to promote environmental awareness and conscious action through the arts; to support environmentally-conscious local artists; and to foster creative locally-based approaches to environmental education. It will involve collaboration among local artists, government agencies, and nonprofit and/or private entities. Visual, performing, literary, culinary, fashion, musical, and moving image artists from around the CNMI will be invited to showcase or perform works of art that celebrate and promote the environment, and that educate the community about the importance of protecting the CNMI's natural resources. In the months leading up to this event, DEQ and its partners will design and coordinate a media campaign to attract Festival participants.

In addition, the Festival will itself model environmentally-friendly behavior. All DEQ literature will be printed on recycled paper, using soy-based ink. Recycling bins will be purchased and installed throughout the project site, and Festival participants will be

## Commonwealth of the Northern Mariana Islands

regularly reminded to deposit their recyclable materials and trash in the appropriate bins. Also, all food and art vendors will be given a supply of reusable and/or biodegradable bags to patrons who have purchased items. Food vendors will additionally be supplied with biodegradable/compostable serving ware. Finally, DEQ will provide vendors with information about where to obtain supplies for future use.

**Resources Required:** \$20,000

**Potential Source of Support:** Coral Management grants, local sponsorships

### Threat or Need Area (from the list on page 1) 4. Recreational Use Management

**Goals and Objectives in this area:** CNMI's economy relies heavily on tourism. One of the primary tourist draws to any tropical island is water-based recreation. These uses, if not properly managed, can have detrimental effects on coral reef health, upon which these activities depend. Appropriate management of all recreational uses is necessary so that reef resources and the tourism economy can both be sustainable. The Coastal Resources Management Office has regulated marine sports since 1985. CRM realizes that the protection of the environment from short-term economic exploitation is inherently important for the long-term protection and sustainability of CNMI's economy. The LAS proposes three tasks under the recreational use and misuse section to be completed over the next few years. One of these, developing a 'low-impact' snorkeling video, was identified as a priority for funding this year. In addition, there are several other tasks proposed under the Public Awareness and Involvement section that are highly relevant to recreation. These tasks aim to reduce negative impacts on reefs by educating users about the impacts of their actions. In the longer term, the CNMI plans to implement increased monitoring and enforcement of vessels and activity at MPA borders, as well as installation of mooring buoys.

**Project L Title:** Implementation of Local Action Strategy Projects Relevant to Recreational Use

**Project Period:** FY2005 and FY2006

**Very Brief Project Description:** In FY 2006 we will be completing the following three projects from the LAS that were funding through CNMI's FY2005 Coral Management grant.

LAS Project # D.5. Include coral reef ecotourism section in the NMC Tourism Course. Students in the course will be exposed to lectures on ecotourism, and then will complete at least two assignments. First, they will pose as tourists and visit various tourist locations in order to see if information about coral reef ecotourism is being disseminated to patrons. They will then compile a "report card" for HANMI, NMDOA, MVA, JSTA, Tour operators, and the Marine Sport Association. Students will also give presentations to guests at participating hotels, with the assistance of translators.

## Commonwealth of the Northern Mariana Islands

LAS Project # D.6. Work with NMDOA to provide a "Reef Friendly" Dive Instructor Train-the-Trainer Certification Workshop. A consultant will work with NMDOA to gather course material and conduct workshops for dive instructors and other dive shop employees on reef protective classes. Dive shops will be encouraged to send their instructors to these workshops, and use the "Reef Friendly" certification as a marketing tool.

LAS Project # B.3 Develop a multi-lingual "low impact" or "reef-friendly" video to be aired on all incoming CNMI flights, on the local Visitors Channel, and/or other local TV stations. The video will focus on proper snorkel, diving, fishing, and boating practices and be designed to act not only to educate but also as a promotional tool. Videos from Oceanwatch, Hanaumau Bay (Peter Rapa), and Guam will be used in assisting CNMI to develop an effective video tool that will work in airlines but also distributed to schools, hotels, and tour operators. The efficacy of the video will be measured by a viewer feedback survey, which will be included on the immigration document filled out by all non-resident travelers to the CNMI.

**Resources Required:** No additional funding needed

**Potential Source of Support:** Coral Management grants

### Threat or Need Area (from the list on page 1) 5. Management Capacity Building

**Goals and Objectives in this area:** This focus area was developed as a result of the analysis of cross cutting issues and capacity needs. After reviewing goals, objectives, and projects a number of additional staffing, training and technical assistance needs were identified to improve CNMI capacity to implement the LASs. A new set of goals, objectives and projects were developed to address CNMI needs. Important needs include program planning and management staff, enforcement officers, diver training, and interagency coordination. The goal of this focus area is to secure adequate staff, training and technical assistance to manage threats to coral reef resources and implement the CNMI coral reef initiative.

**Project M Title:** CNMI Coral Reef Initiative Coordination and Representation

**Project Period:** Continual

**Very Brief Project Description:** CNMI Executive Directive No. 235 established an interagency structure to coordinate coral reef issues. The CNMI recognized that to accomplish coral reef sustained use and protection goals and objectives, there must be good coordination among the CNMI's agencies and their federal partners to maximize results and ensure sustainable use, restoration, and protection of the CNMI's coral-reef ecosystems. The Directive created the Coral Reef Point of Contact/Facilitator (POC) position within the Governor's Office. In addition, the directive created the Coral Reef Policy Committee (CRPC) comprised of the Directors of CRM, DEQ, and DFW. The Directive also created two other committees that comprised

## Commonwealth of the Northern Mariana Islands

of appointed representatives from CRM, DEQ, and DFW: Coral Reef Coordinating Committee (CRCC) and Coral Reef Science Advisory Committee (SAC).

Funding under this task would support the costs associated with coordinating the CNMI's coral-reef conservation efforts, including personnel and travel costs associated with representing the CNMI on the USCRTF and among U.S. and International Coral Reef Initiatives. Funding will include one year of salary and benefits for a full-time Coral Reef POC/Facilitator and travel expenses for the CNMI's participation in the USCRTF meetings and related venues.

**Resources Required:** Estimated needs at \$85,000 per year; \$65,000 requested for FY2006

**Potential Source of Support:** Coral Management grants

**Project N Title:** Assistant Attorney General Dedicated to Coral Reef Protection Legal Issues (cross cutting with Fisheries Management, Land Based Sources of Pollution Management, and Recreational Use Management)

**Project Period:** FY2004, FY2005, and FY2006

**Very Brief Project Description:** This project will continue support of an AAG to work with the three lead natural resource management agencies directly involved in coral reef management and monitoring activities, namely DFW, CRM, and DEQ, to help each agency maximize their ability to protect coral reefs and other associated marine resources. Having an AAG dedicated to coordinating and conducting coral-reef protection agency-related activities in a sound and legal manner will make a substantial contribution towards reducing negative human impacts on the CNMI's reefs and natural environment. Over the past few years, local agencies have developed (or adapted from other sources) a number of coral reef legal protections. But these protections have had limited impact because the resource agencies do not have staff trained in implementing administrative actions and/or dedicated to evaluate and adapt regulations and enforcement orders to the agencies' jurisdictional limitations. The AAG will help agencies to provide this follow-through on jurisdictional authority, enforcement ability, administrative actions, and regulatory mechanisms that are sufficient to provide sound protection to marine and coral reef resources, while simultaneously ensuring that violators are punished accordingly.

**Resources Required:** \$85,000 per year

**Potential Source of Support:** Coral Management grants or CNMI Attorney General's Office

**Project O Title:** CNMI Specific Coral Reef Economic Valuation (potential regional project)

**Project Period:** FY2005 and FY2006

**Very Brief Project Description:** Economic valuation of our natural resources is important to long-term protection of the CNMI's resources. Currently Commonwealth development and operational decisions are made primarily to maximize economic gain and stimulate the CNMI economy. The Commonwealth does not have a good way to

### Commonwealth of the Northern Mariana Islands

measure the true value of conserving and restoring CNMI's coral reefs and associated ecosystems or a good way to measure the true costs of current impacts or proposed development. An economic evaluation of coral reefs specific to the CNMI will be completed. The study will clearly identify the major uses, users, and threats to coral reef and adjacent habitats and will organize the analysis taking these into account. The study area for the CNMI Coral Reef Economic Valuation Study will be: Saipan Lagoon and outer reef to a depth of 100 meters; no-take marine protected areas (MPA) on Saipan; and main dive sites on Saipan including Grotto (within a no-take MPA), LauLau, Obyan, Ice Cream, and Dimple. The study will provide a full accounting, to the extent possible, of the principal economic values associated with the coral reefs and adjacent habitats in the study area. This task will help reduce the impacts of increasing development pressure, unmanaged land use and population growth by providing more concrete economic justifications for protecting the health and extent of CNMI coral reef ecosystems. Specifically an economic valuation may assist the CNMI to do the following: gain public and political support for conservation and management actions, place natural resource protection as a priority in land use planning and zoning, leverage local and federal funding for conservation and management actions, assess fines for damages and permit violations.

**Resources Required:** Total budget is \$78,500; no additional resources required in FY2006

**Potential Source of Support:** Coral Management grants

## Commonwealth of Puerto Rico



Populated for centuries by aboriginal peoples, the island was claimed by the Spanish Crown in 1493 following Columbus' second voyage to the Americas. In 1898, after 400 years of colonial rule that saw the indigenous population nearly exterminated and African slave labor introduced, Puerto Rico was ceded to the US as a result of the Spanish-American War. Puerto Ricans were granted US citizenship in 1917. Popularly-elected governors have served since 1948. In 1952, a constitution was enacted providing for internal self government. In plebiscites held in 1967, 1993, and 1998, voters chose to retain commonwealth status.

Governor: Honorable Anibal Acevedo-Vila

Coral Reef Point of Contact: Ms. Aida Rosario  
 Director of Division of Fisheries Research Laboratory  
 Bureau of Fish and Wildlife  
 Department of Natural and Environmental Resources  
 P.O. Box 3665 Marina Station  
 Mayaguez, PR 00681  
 Ph: - 787-833-2025, 2129, 2118 Fax - 787-833-2410  
[lipdrna@coqui.net](mailto:lipdrna@coqui.net)

Extent of jurisdictional coral reefs: 231.58 square miles	Population: 3,916,632
Coral species: 50	Land area: 3,459 square miles
Fish species: 200	Arable land: 3.95%

## Commonwealth of Puerto Rico

**Jurisdiction:** Puerto Rico

**Major Areas of Focus for Coral Reef Management Efforts for 2004-2005 as background for the 2006 strategy:** The major areas of focus for the 2004-2005 were the Overfishing impacts on coral reefs and landbased sources of pollution.

**Overall Goals and Objectives for coral reef initiative programs for 2006:** Start to implement the Coral Reef Regulations and the continue with the implementation of the Local Action Strategies projects to minimize the negative impacts in these resources. One goal that is not contemplated in the LAS is the assessment of the *Acropora palmata* and *A. cervicornis* around PR coasts. These species are being evaluated to be designate as threaten species.

**Specific Threats or Needs to be addressed in 2006:**

1. Overfishing
2. Land base sources of Pollution
3. Recreational Overuse
4. Lack of Awareness



## Commonwealth of Puerto Rico

### Threat or Need Area (from the list on page 1) Overfishing

**Goals and Objectives in this area:** Reduce management gaps and issues related to fisheries law enforcement, protected areas, draft management plans, outreach and education as important topics that need to be addressed in order to protect coral reef resources

**Project A Title:** Quantification of coral reefs and essential fish habitat loss.

**Project Period:** 12/01/06

**Very Brief Project Description:** Select, characterize, and monitor habitats essential for fishery resources that are being affected by non-fishing activities

**Resources Required:** \$300,000

**Potential Source of Support:** Need to identify partners and funding resources

**Project B Title:** Assess damage caused by grounding, anchoring or human trampling at target coral reef areas

**Project Period:** 2006-09

**Very Brief Project Description:** Identify frequently used coral areas to determine mechanical impact on coral reefs. Divers will gather data utilizing sound science and methodologies to assess damage to corals caused by the recreational activities mentioned above.

**Resources Required:** \$90,000

**Potential Source of Support:** NOAA, Sea Grant, External Grants (NFWF) & PRDNER

**Project C Title:** Establish priority conservation areas for the implementation of vegetative conservation practices.

**Project Period:** 7/30/03 to 6/30/06

**Very Brief Project Description:** Identify priority conservation areas using the NRCS and Puerto Rico Department of Agriculture (PRDA) database in order to recommend the best management practices for the selected sites/farms.

**Resources Required:** \$6,000

**Potential Source of Support:** NRCS, JOBANERR

## Commonwealth of Puerto Rico

**Project D Title:** Inventory of septic tanks as a source of pollution in groundwater and coral reefs in the Belvedere Natural Reserve in western Puerto Rico.

**Project Period:** 8/30/05 to 7/30/07

**Very Brief Project Description:** This project will include an inventory of septic tanks and groundwater wells within communities of the Belvedere watershed and will develop an educational and demonstration project to improve the construction quality of septic tanks in the communities. A second phase of the project will sample and analyze the quality of underground and coastal waters that impact coral reef areas.

**Resources Required:** \$56,000

**Potential Source of Support:** NOAA - CRI

**Project E Title:** Convene appropriate agencies to evaluate septic tanks inventory results and develop a strategy to apply Best Management Practices.

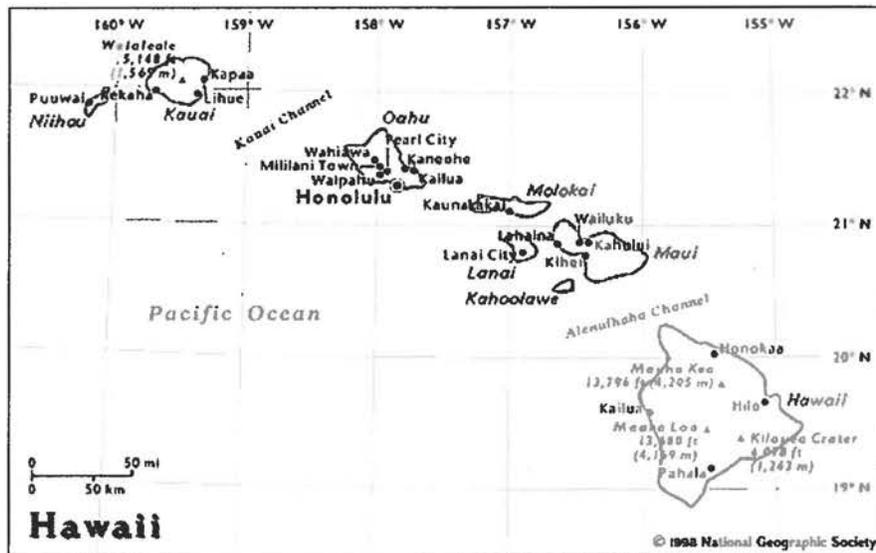
**Project Period:** 10/1/06 to 9/30/07

**Very Brief Project Description:** Present septic tanks inventory results through meetings and workshops to foster discussion and information exchange among agencies and other pertinent entities, such as municipalities, in order to evaluate and develop strategies to apply best management practices for septic systems.

**Resources Required:** \$40,000

**Potential Source of Support:** NOAA - CRI

## Hawaii



The Newlands Resolution was passed on July 7, 1898, formally annexing Hawai'i as a United States territory. In 1900, it was granted self-governance and retained Iolani Palace as the territorial capitol building. Though several attempts were made to achieve statehood, Hawai'i remained a territory for sixty years

In March 1959, both houses of Congress passed the Admission Act and U.S. President Dwight D. Eisenhower signed it into law. (The act excluded Palmyra Atoll, part of the Kingdom and Territory of Hawai'i, from the new state.) On June 27 of that year, a plebiscite was held asking Hawaiians to vote on accepting the statehood bill. Hawai'i voted 17 to 1 to accept.

Governor: Honorable Linda Lingle

Coral Reef Point of Contact: Ms. Athline Clark  
 Special Projects Program Manager  
 Department of Land and Natural Resources  
 1151 Punchbowl St., Rm 330  
 Honolulu, HI 96813  
 1-808-587-0099  
[Athline.M.Clark@hawaii.gov](mailto:Athline.M.Clark@hawaii.gov)

Extent of jurisdictional coral reefs:  
 Coral species: 100  
 Fish species: 1,200

Population: 1,211,537  
 Land area: 6,428 square miles  
 Arable land:

## Hawaii

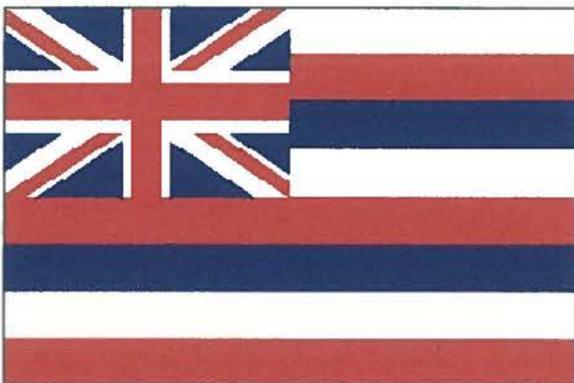
**Jurisdiction:** Hawaii

**Major Areas of Focus for Coral Reef Management Efforts for 2004-2005 as background for the 2006 strategy:** Public Awareness, Climate Change, Bleaching and Disease, Land-Based Sources of Pollution, Coral Reef Fisheries, Recreational Impacts and Alien Species

**Overall Goals and Objectives for coral reef initiative programs for 2006:** 1) Raise awareness of the importance of our reefs to our island lifestyle; 2) To understand and manage impacts to reef ecosystems from climate change and marine disease for increased resistance and resilience; 3) To work towards the development of an integrated fishery management framework to promote sustainable harvest using an ecosystem based approach; 4) To determine the impacts of marine recreation activities on Hawaii's coral reef ecosystems and develop innovative management techniques that increase the environmental sustainability of those activities; 5) To minimize the harmful ecological, economic, and human health impacts of AIS through the prevention and management of their introduction, expansion, and dispersal inot, within and from Hawaii; 6) Reduce land-based pollution to improve coastal water quality and coral reef ecosystem health.

**Specific Threats or Needs to be addressed in 2006:**

see above the threats are the same as previous areas of focus



## Hawaii

### Threat or Need Area (from the list on page 1): Coral Reef Fisheries

#### **Goals and Objectives in this area:**

**Project A Title:** Fisheries Liaison officer

**Project Period:** 3 years

**Very Brief Project Description:** Create a position to liaison and clearly work with the fishermen to get them the appropriate and latest scientific information to minimize current perceptions

**Resources Required:** \$240K over 3 years

**Potential Source of Support:** PIRO

### Threat or Need Area (from the list on page 1): Land Based Sources of Pollution

#### **Goals and Objectives in this area:**

**Project B Title:** Develop indicators of pollution stress

**Project Period:** 3 years

**Very Brief Project Description:** Work with researchers to develop a tool or suite of tools that clearly, cleanly and easily identify indicators of pollution stress on coral reefs

**Resources Required:** \$180 K over 3 years

**Potential Source of Support:** EPA, NOAA, NRCS

### Threat or Need Area (from the list on page 1): Recreational Impacts and Alien Species

#### **Goals and Objectives in this area:**

## Hawaii

**Project C Title:** Develop a tool to determine carrying capacity

**Project Period:** 3 years

**Very Brief Project Description:** No good tool that is both

biologically and socially sound exists to clearly set limits and modify management strategies in high use, high impact coastal recreation sites. This proposal seeks to work with researchers to develop this tool

**Resources Required:** \$240K over 3 years

**Potential Source of Support:** NOAA, DOI, State and County agencies, Tourism industry

**Project D Title:** Develop a suite of chemical tools to combat spread of alien species

**Project Period:** 3 years

**Very Brief Project Description:** There is no known or approved chemicals that can be used to combat the initial introduction or the incipient spread of alien species on a reef. This project seeks to work towards gaining both the regulatory approval to use such a tool and to research the viability of developing such tools.

**Resources Required:** \$240K over 3 years

**Potential Source of Support:** NOAA, DOA, DOT, EPA

**Threat or Need Area (from the list on page 1):** Public Awareness

### **Goals and Objectives in this area:**

**Project E Title:** Community-based management support

**Project Period:** 3 years

**Very Brief Project Description:** A network of NGOs and the resource management agencies are developing curriculum to train interested communities on how to become more engaged and assist in caring for our nearshore resources. This project seeks to provide seed money to various communities for the training and start-up costs associated with community-based management

**Resources Required:** \$120K over 3 years

**Potential Source of Support:** Private foundations, NFWF, NOAA, DOI, Tourism industry, user fees, etc.

## United States Virgin Islands



During the 17th century, the archipelago was divided into two territorial units, one English and the other Danish. Sugarcane, produced by slave labor, drove the islands' economy during the 18th and early 19th centuries. In 1917, the US purchased the Danish portion, which had been in economic decline since the abolition of slavery in 1848. The United States Virgin Islands is an Organized, Unincorporated Territory of the United States.

Governor: Honorable Dr. Charles Wesley Turnbull

Coral Reef Point of contact: Mr. Bill Rohring  
 Assistant Director  
 Division of Coastal Zone Management  
 Department of Planning & Natural Resources  
 Cyril E. King Airport, Terminal Bldg., Fl. 2  
 St. Thomas, VI 00802  
 phone: 1-340.774.3320 ext. 5107 fax: 1- 340.714.9524  
[Bill.Rohring@viczmp.com](mailto:Bill.Rohring@viczmp.com)

Extent of jurisdictional coral reefs:  
 Coral species: 50  
 Fish species: 200

Population: 108,708  
 Land area: 134.75 sq. miles  
 Arable land: 11.76%

## **Appendix A**

### **Regional Projects**

The following projects, which require cooperative action for a regional benefit, were submitted by the jurisdictions.

**Project A Title:** Mariana Islands Eco-regional Conservation Strategy

**Project Period:** FY2006 and FY2007

**Jurisdictions Involved:** CNMI, Guam

**Very Brief Project Description:** The goal of this project is to develop a portfolio of marine and terrestrial conservation targets within the Mariana Islands that represents the full array of ecological communities, plants and animals, that when conserved will effectively protect the area's natural heritage for this and future generations. This will be a joint effort with the Territory of Guam, the CNMI, The Nature Conservancy, NOAA and DOI to produce an ecoregional conservation strategy for the entire Mariana ecoregion. This strategy will identify priority species, habitats and areas for conservation based on the best data and information available for the area.

**Resources Required:** Estimated need at \$80,000 FY2006

**Potential Source of Support:** NOAA, DOI, The Nature Conservancy, Micronesian Leaders In Conservation, Government of Guam, and Government of CNMI (provided by CNMI)

**Project B Title:** Pacific Islands Marine Protected Area Community

**Project Period:** 2005-2006

**Jurisdictions Involved:** Guam, Commonwealth of the Northern Mariana Islands, Hawaii, Republic of Palau, Federated States of Micronesia, Republic of the Marshall Islands, and America Samoa

**Very Brief Project Description:** Project aims to provide a platform for regional discussion, information and experience sharing, and action to address current and emerging MPA challenges.

**Resources Required:** Administrator, support staff and office space

**Potential Source of Support:** Coral Reef Initiative

(Provided by Guam)

**Project C Title:** Climate change and disease protocols workshop

**Project Period:** 3 days

**Jurisdictions Involved:** Hawaii, Guam, Am. Samoa, CNMI, and FAS

**Very Brief Project Description:** provide managers and researchers with a set of tools and management strategies to begin to address threats of bleaching and disease across the region, before it becomes a major problem

**Resources Required:** unknown mainly travel costs

**Potential Source of Support:** NOAA, EPA, TNC

(Provided by Hawaii)



